

REMARKS

Claims 1-38 are pending in the case and are rejected. Claims 1, 3-10, 12-13, 16, 29, and 31-37 are amended. Claims 2, 11, 21, 30, and 38 are canceled. The amended claims have been amended to further clarify the claims and to address the art cited by the Examiner. The claims are allowable over the cited art.

CLAIM REJECTIONS UNDER 35 U.S.C. §102

Claims 1, 10, and 29 are rejected as anticipated under 35 U.S.C. §102(b) by Ben-Dov (U.S. Patent No. 4,885,839).

The Ben-Dov reference discloses a process of fabricating a waveguide. Specifically, this reference discloses a process for transforming a rigid waveguide having a rectangular cross-section into a waveguide having generally a circular cross-section to reduce wind load. Generally, the Ben-Dov reference teaches the desirability of having a rectangular waveguide because of the stability of the polarity of the signal, which the rectangular waveguide provides. Figure 5 in the Ben-Dov reference discloses a rectangular waveguide extending between a building and an antenna.

However, the teaching in the Ben-Dov reference is merely of a rigid rectangular waveguide. A waveguide is only one element recited in each of claims 1, 10, and 29. Specifically, a multiband/multichannel wireless feeder is disclosed, including a flexible waveguide and a multiplexing waveguide network coupled at each end of the flexible waveguide. The Ben-Dov reference clearly does not disclose such a multiband/multichannel wireless feeder, which includes a flexible waveguide and multiplexing waveguide networks coupled at each end. In fact, the waveguide of Ben-

Dov is clearly disclosed as being a rigid waveguide. The whole point of the Ben-Dov invention is to change the profile of a rigid waveguide.

Since the Ben-Dov reference does not disclose each and every one of the elements recited in claims 1, 10, and 29, those claims are not anticipated by the Ben-Dov reference under §102(b).

With respect to claims 6, 8, and 18, those claims are rejected as anticipated under §102(b) over the reference of Tawil (U.S. Patent No. 5,235,297). The Tawil reference specifically discloses a directional coupling manifold. Each of claims 6, 8, and 18 discloses a wireless feeder including a flexible waveguide and a multiplexing waveguide network coupled at each end of the waveguide. The multiplexing of Tawil does not include a flexible waveguide. Nor does it teach a multiplexing waveguide network coupled at each end of a flexible waveguide to couple together an antenna and the electronics of a base station.

Since the Tawil reference does not teach each and every one of the limitations as recited in claims 6, 8, and 18, those claims are not anticipated under §102(b) based upon the Tawil reference.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

Claims 2, 4, 5, 11-16, 22-26, 28, 30, and 33-38 are rejected as being obvious under §103(a) over the combination of Ben-Dov and Tawil. Claims 3, 27, and 31 are rejected over that same combination with the addition of Juds et al. (U.S. Patent No. 4,763,132). Finally, claims 7, 9, 17, and 19-21 are rejected under §103(a) over Tawil as modified by Juds et al.

Turning first to the Ben-Dov/Tawil rejections, independent claims 1, 6, 10, and 29 are the independent claims from which the dependent claims depend.

Specifically, claim 1 recites an antenna system for a base station comprising a support structure and a multiband/multichannel wireless feeder, which includes a flexible waveguide and a multiplexing waveguide network coupled at each end of the flexible waveguide. The multiplexing waveguide networks are coupled respectively with the antenna and electronics of the base station. That is, the base station electronics at the foot of a support structure, such as a tower, are coupled to a multiplexing waveguide network, which is then coupled to a flexible waveguide. The flexible waveguide extends up the support structure and includes another multiplexing waveguide network at the opposite end that couples with the antenna. The multiplexing waveguide network is configured to combine frequencies and applications associated with the antenna and electronics so that, for example, multiple applications, such as a PCS and a 3G application may be handled by the claimed base station antenna system. Furthermore, a first service provider might be handled by the claimed antenna system through the multiplexing waveguide network simultaneously with a second service provider, which is also handled by the multiplexing waveguide network. Because the multiplexing waveguide network is configured to combine frequencies and applications and direct them up a single flexible waveguide to the antennas, the number of feeders for the multiple service providers at a base station is reduced. As illustrated in Figure 1 of the pending application, different service providers and applications might be coupled through the multiband/multichannel wireless feeder recited in claim 1 to feed the antenna or antennas at the top of the tower. Therefore, multiple service providers can share a common base station antenna and feed system.

As noted above, the Ben-Dov reference is primarily directed to a process for fabricating a waveguide. While the waveguide is shown in place along a tower, there is no teaching or discussion in Ben-Dov with respect to utilizing multiplexing waveguide networks at either end of a flexible waveguide to combine frequencies and applications associated with an antenna and various electronics. The Examiner cites to column 1, lines 19-38 of Ben-Dov, but such a discussion does not in any way teach or suggest to a person of ordinary skill in the art utilization of a flexible waveguide along the support structure and multiplexing waveguide networks coupled at each end of the flexible waveguide to couple with a respective base station antenna and electronics, and thereby combine frequencies and applications associated with the antenna electronics, all to be handled over a single flexible waveguide that runs up the support structure.

Turning now to the Tawil reference, that reference discloses a multiplexor circuit for multiplexing individual channels onto a unitary waveguide manifold. However, as noted above with respect to the Ben-Dov reference, there is absolutely no teaching regarding incorporating such a device with a flexible waveguide to combine frequencies and applications associated with a base station antenna and base station electronics at the base or foot of the support structure. Nor is there a teaching regarding coupling a multiplexing waveguide network at one end of a flexible waveguide to couple to an antenna and coupling another multiplexing waveguide network at the other end to couple to base station electronics.

Basically, the waveguides taught in Tawil are all rigid waveguide sections, or manifolds. There is no teaching provided either in Ben-Dov or the Tawil reference to somehow modify the base Ben-Dov reference to yield the invention. Again, the Ben-Dov reference is merely directed to altering the rigid rectangular waveguide for wind

loading. There is nothing to suggest, as recited in claim 1, that a person of ordinary skill in the art somehow would combine the device of Tawil into the Ben-Dov system. There would be no reason to make such a combination. The Tawil reference is specifically directed to multiplexing signals using high quality filters. There is no teaching or discussion therein with respect to signal loss in a base station at a cell site when directing signals between the electronics of a base station at the base of a cell tower and the antenna or antenna structure at the top of the cell tower. As such, no motivation to combine any of the references or to modify the Ben-Dov system to somehow fit the Tawil structure therein is found in the two references. Furthermore, there is no teaching of how to even modify the Ben-Dov structure to yield the invention. A person of ordinary skill in the art would not just think to throw two very different structure together without a specific teaching of why to do so and how to do so.

Accordingly, the only possible motivation to combine those two references would be essentially based upon the pending invention itself, which is hindsight motivation. The two references are directed to two completely different issues and, therefore, there is simply no teaching or motivation to make the suggested combination other than improper hindsight. It is well established that a *prima facie* case of obviousness under §103(a) cannot be established by simply gathering up individual pieces and somehow combining them to try to form the present invention, absent a teaching by the references to make such a combination and absent a teaching of how to make such a combination to yield the present invention.

Furthermore, there is no absolutely teaching in Ben-Dov or Tawil of a flexible waveguide coupled between the respective multiplexing waveguide networks.

Therefore, even if the references were combined, they still would not teach the present invention as recited in claim 1.

Independent claim 6 similarly recites a wireless feeder configured for use in a base station to couple an antenna with the electronics of a base station, with the wireless feeder comprised of a flexible waveguide having a coupling at each end and a multiplexing waveguide network coupled at each end of the waveguide, and configured to couple with the respective antenna or electronics of the base station. Claim 6 further recites that the multiplexing network is configured to combine frequencies and applications associated with the antenna and electronics. For the reasons noted above, there is absolutely no teaching in the prior art combination of such a wireless feeder structure for use in a base station to couple an antenna and the electronics of the base station.

Claim 10 recites a method similar in respect to claim 1. For the reasons discussed hereinabove, claim 10 would not be rendered obvious by the combination of Ben-Dov and Tawil.

Finally, claim 29 recites a wireless communication system base station comprising a support structure, at least one antenna proximate the top of the support structure, and electronics located proximate the base of the support structure. A multiband/multichannel wireless feeder is configured for coupling the antenna with the electronics and includes a flexible waveguide extending along the support structure and a multiplexing waveguide network coupled at each end of the waveguide and coupled respectively with the antenna and with the electronics. The multiplexing waveguide networks are configured to combine frequencies and applications associated with the antenna and electronics, and thereby direct them over the flexible waveguide that

extends along the support structure. Also for the reasons discussed hereinabove, claim 29 is not rendered obvious by the present invention under §103. The prior art, taken as a whole, just simply does not teach a person of ordinary skill in the art regarding all of the combined elements of the invention as claimed such that the invention would be obvious to such a person. Therefore, the claimed invention recited in all claims 1, 6, 10 and 25 are now patentable.

Rejected claims 2, 4-5, and 12-13 each depend from claim 1 and include the limitations therein. Thus, those claims are allowable for the same reasons as discussed above for claim 1. Furthermore, those claims recite a unique combination of elements not rendered obvious by the Ben-Dov/Tawil combination.

Pending claims 11 and 22-24 each depends from independent claim 10, and thus are allowable for the same reasons as noted above for claim 10. Furthermore, those claims recite a unique combination of method steps not rendered obvious by the Ben-Dov/Tawil combination.

Finally, claims 30 and 33-35 each depend from allowable claim 29, and are, therefore, allowable as noted above. Furthermore, those claims recite a unique combination of elements not rendered obvious by the Ben-Dov/Tawil combination.

Claims 3, 27 and 31 each depend respectively from claims 1, 10 and 29. They are rejected under §103(a) as being obvious over Ben-Dov/Tawil as further modified by Juds et al. Specifically, the Examiner argues that Ben-Dov/Tawil disclose all the limitations except for an elliptical waveguide. He then relies upon Juds et al. to disclose an elliptical waveguide. Therefore, while the Juds et al. reference shows an elliptical waveguide, it is specifically directed to a waveguide hanger. It provides no

teaching of those elements lacking in the Ben-Dov/Tawil combination to render obvious the invention recited in claim 3, 27 and 31. Specifically, it should be noted that the Juds et al. reference is commonly owned by Andrew Corporation along with the currently pending application. Accordingly, claims 3, 27 and 31 are allowable over the cited art.

Claims 7, 9, 17 and 19-21 are rejected under §103(a) as being obvious over Tawil as modified by Juds et al. Claims 7, 9, and 17 each depend from independent claim 6, which is not anticipated by the Tawil reference as noted above. The Examiner notes that Juds et al. is relied upon for teaching an elliptical waveguide. However, the combination of Tawil and Juds et al. does not teach the invention in claim 6, which calls for a flexible waveguide with multiplexing waveguide networks coupled at each end of the waveguide, and configured to couple with the respective antenna or electronics of a base station. Accordingly, claims 7, 9 and 17 are not rendered obvious by Tawil/Juds et al. Because claim 6 is not rendered obvious by that combination, the claims 7, 9 and 17 are not rendered obvious by that reference combination. Furthermore, each of the dependent claims 7, 9 and 17 recites a unique combination of elements not rendered obvious by that combination of references.

Finally, claims 19 and 21 each depend from claim 6. Claim 21 has been canceled. Claim 19 is allowable for the reasons as noted above, with respect to claim 6. Furthermore, claim 19 recites a unique combination of elements not rendered obvious by the Tawil/Juds et al. combination.

CONCLUSION

Applicant submits that the currently pending claims are in an allowable form and not rendered obvious by the cited references and, therefore, requests a Notice of Allowability of the application at the Examiner's earliest convenience. If any issues remain in the case which might be handled in an expedited fashion, such as through a telephone call or an Examiner's Amendment, the Examiner is certainly encouraged to telephone the Applicant's representative or to issue an Examiner's Amendment.

Applicant knows of no fees due herein with this submission. However, if any charges or credits are necessary, please apply them to Deposit Account 23-3000.

Respectfully submitted,

WOOD, HERRON & EVANS, L.L.P.



Kurt A. Summe
Reg. No. 36,023

2700 Carew Tower
Cincinnati OH 45202
(513) 241-2324 (voice)
(513) 421-7269 (facsimile)